

# Rural Health Can Lead!

FLEX Session Plenary

**ORHP All Programs Meeting**

The Grand Hyatt Washington

Washington, D.C.

August 19, 2003

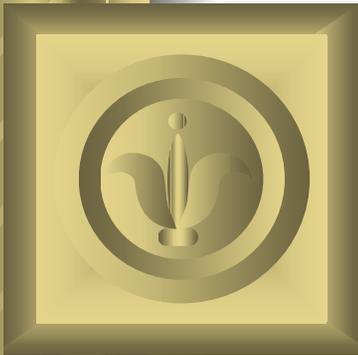
Martin D. Merry, MD

Adjunct Associate Clinical Professor of Health Management and Policy

University of New Hampshire

Senior Advisor for Medical Affairs

New Hampshire Hospital Association and Foundation



# My Hypotheses for this Session

- Our \$1.6+ trillion health care system is now virtually collapsing under the weight of its sheer size (equal to the world's 4<sup>th</sup> largest national GNP) and staggering complexity.
- Future health care will not emerge incrementally by “problem-solving” the current system. It will arise “ground-up,” like the Phoenix from its ashes, based on fundamentally different assumptions about how we care for patients and communities. In Thomas Kuhn's words, the future health care system will represent a true “paradigm shift.”
- **Rural health is extraordinarily well positioned to provide leadership and guidance to our entire health system as it traverses this paradigm shift.**

# THE SECOND CURVE

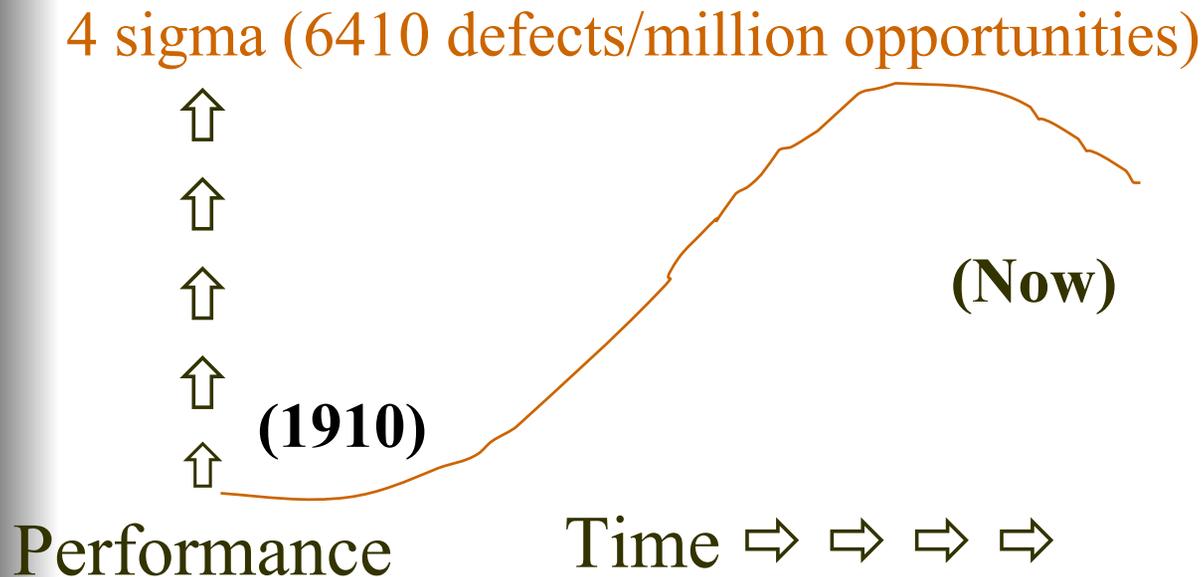
**Managing  
the Velocity  
of Change**

- **Anticipate the pace of change**
- **Identify your company's new direction**
- **Know when to jump onto the second curve**

**IAN MORRISON**

President of the Institute for the Future

# 1st Curve: Pre-Industrial, Craft-based



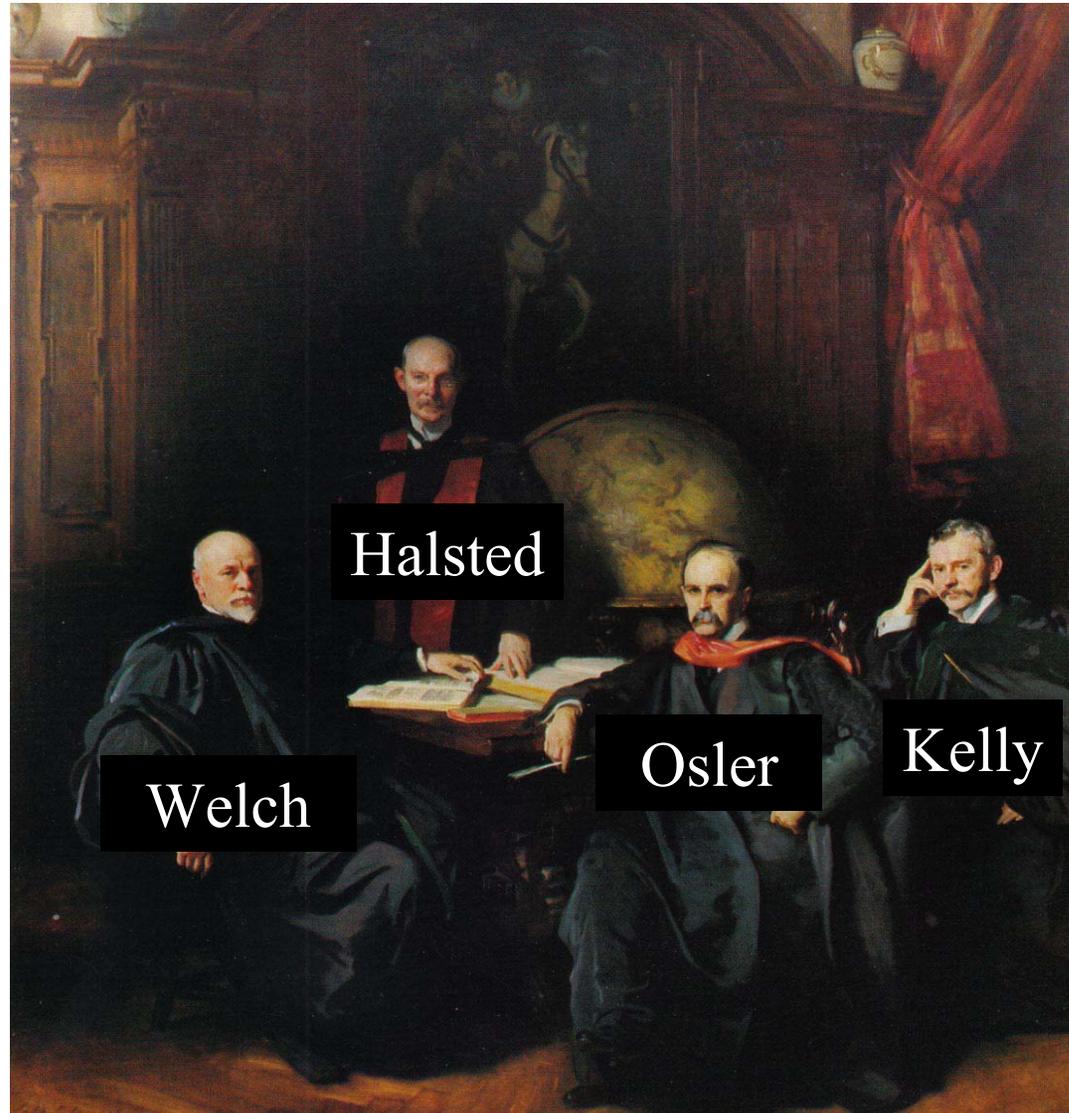
- adapted from Ian Morrison, The Second Curve.  
Managing the Velocity of Change, 1996



# Origins of the 1<sup>st</sup> Curve

# “The Four Doctors:”

Architects of Health Care’s 1<sup>st</sup> Curve



Halsted

Welch

Osler

Kelly

“The most important event in the history of  
American and Canadian medical education”

**MEDICAL EDUCATION  
IN THE  
UNITED STATES AND CANADA**

**A REPORT TO  
THE CARNEGIE FOUNDATION  
FOR THE ADVANCEMENT OF TEACHING**

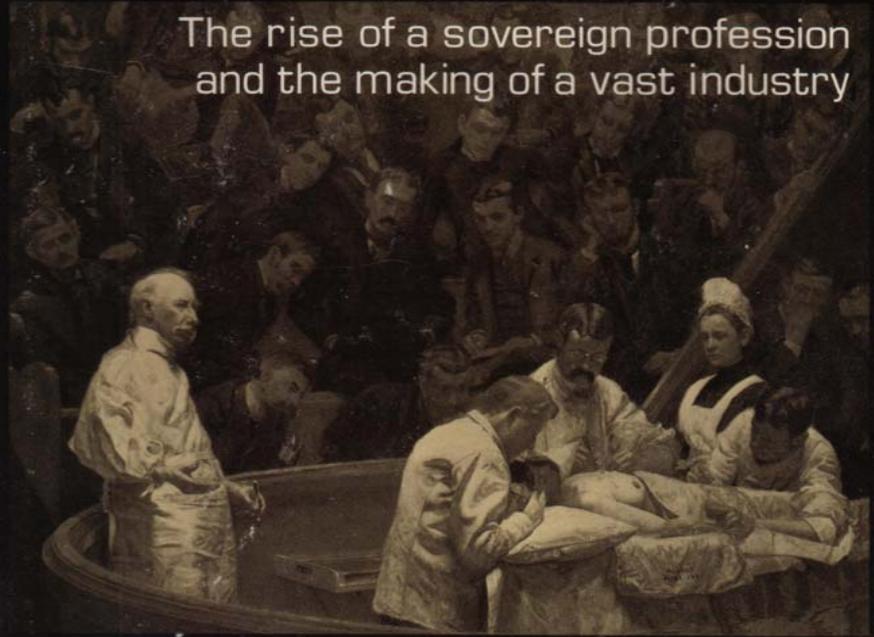
**BY  
ABRAHAM FLEXNER**

**WITH AN INTRODUCTION BY  
HENRY S. PRITCHETT  
PRESIDENT OF THE FOUNDATION**

**BULLETIN NUMBER FOUR (1910)**

# The Social Transformation of American Medicine

The rise of a sovereign profession and the making of a vast industry



The Social Transformation  
of American Medicine

PAUL STARR

BASIC  
BOOKS

PAUL STARR

The Social Transf  
of American /

# The Social Transformation of American Medicine

*“No matter how dramatically you think healthcare has changed in the last decade, now is the time before the revolution. Year by year, the existing system is coming unstuck.”*

- Paul Starr, speech, 1990



# An “Unstuck” System? The Evidence

1. Quality (the trouble with a 4 sigma performance system)

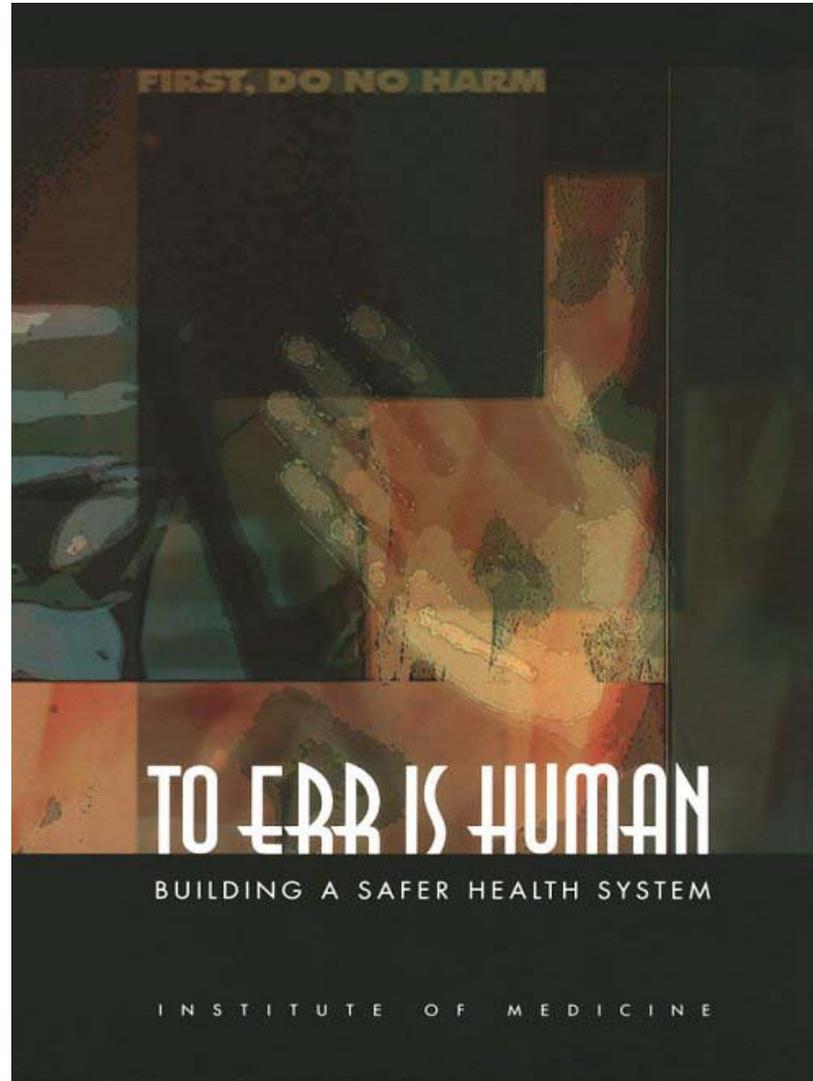
1. Wed. ER: Severe symptoms, tachycardia, BP 54/38, abnormal EKG, home after 5 hr stay  
↓
2. Thurs., Family physician visit, tests ordered  
↓
3. Fri., Echocardiogram performed  
↓
4. Sat., Cardiologist reads echo as “severely abnormal,” dictates report  
↓
5. Mon., Echo transcribed, delivered to FP

But the Monday report was irrelevant . . .

Sunday Morning: *Mother finds her 19-year-old nursing student daughter dead in bed.*

Autopsy: Multiple Pulmonary Emboli

# Safety Finally Gains the Spotlight



# The Disturbing Reality

- *“These stunningly high rates of medical errors - resulting in deaths (44,000-98,000 annually), permanent disability, and unnecessary suffering - are simply unacceptable in a medical system that promises first to ‘do no harm.’ Our recommendations are intended to encourage the health care system to take the actions necessary to improve safety.”*

- William Richardson, IOM Committee Chair, November, 1999

Perhaps our greatest challenge?  
Literally fatally flawed  
processes are deeply embedded  
in health care's present craft-  
based culture, with many still  
holding vested interests in their  
continuation.

# How a care process evolves in a craft-based model, with no conscious design

**1. ER Physician sees patient, discharges**

*(Disconnect 1)*

**2. Family physician sees her, orders tests**

*(Disconnect 2)*

**3. Echocardiogram performed**

*(Disconnect 3)*

**4. Cardiologist reads echo, dictates as “seriously abnormal,”  
leaves hospital without notifying anyone**

*(Disconnect 4 - the last chance for a “near miss”)*

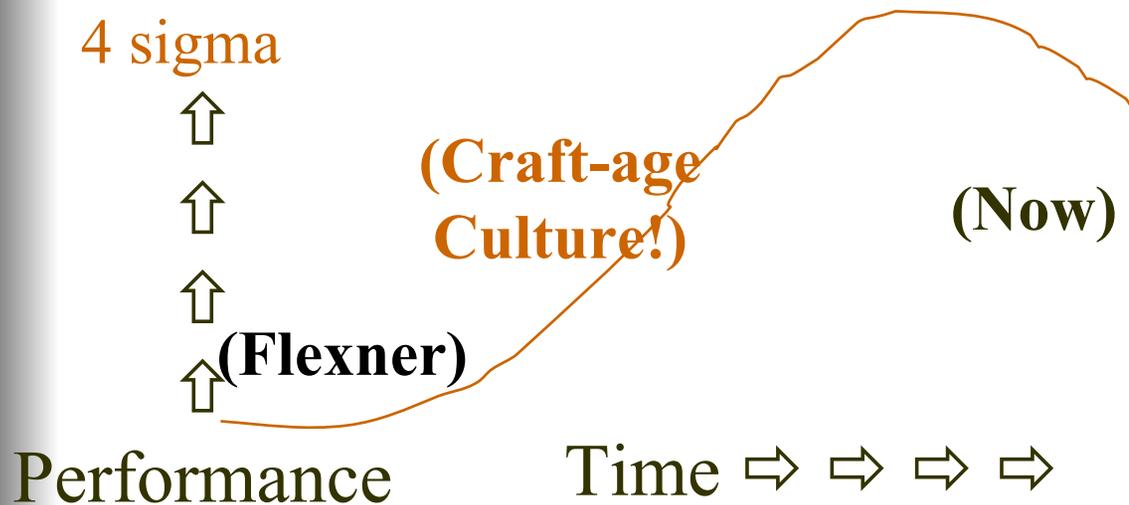
**5. Patient dies at home**

*(Disconnect 5)*

**6. Echo report transcribed, delivered to family physician**

# The Flexner through Now Metaphor

## 1st Curve: Pre-Industrial Craft-based



- adapted from Ian Morrison, The Second Curve. Managing the Velocity of Change, 1996

# The “Fatal Flaw” of our 1<sup>st</sup> Curve, “unstuck” health care system?

- *Complex health care processes*
- *unsupported by a carefully designed error-mitigating infra-structure*
- *have a performance capability ranging between 2 - 4 sigma.*

# A 6-sigma primer: where we **are**/**need to be**

<u>Sigma</u>	<u>Defects Per Million</u>
1	690,000
2	308,000
(90% OK	100,000)
3	66,800
(99% OK	10,000)
4	6,210
5	230
6	3.4

# Health Care 2003: Miraculous

technical capability, but . . . .

- *Throughout the 20<sup>th</sup> century, medicine's cultural traditions fostered extraordinary **scientific advances and product innovation** (procedural, pharmaceutical, etc.). But this tradition has been virtually blind to the **process innovation** needed to support the complexity these advances have wrought. Health care's craft-based culture still features a fairly rigid professional hierarchy, isolation of clinical care from institutional management, and virtually no coordinated design of care systems and microsystems around the true needs of patients.*

- adapted from Paul Uhlig, MD

And . . . Our deepest  
dilemma . . .

“Every system is perfectly  
designed to achieve the  
results it does.”

- Paul Batalden, MD, Dartmouth Center for the  
Evaluative Clinical Sciences



Which means that the  
following headlines will  
plague us until . . . . ?

# The inevitable consequences of a 4 sigma maximum process capability



Jéssica Santillán, with her mother, Magdalena  
(New York Times, 2/19/03)



# An “Unstuck” System? The Evidence

## 2. Cost (of Poor Quality)

# The cost of “overuse, underuse, misuse, and waste”? (IOM)

“Cost of Poor Quality”?  
\$390 *Billion*, Annually

Reducing the Costs  
of Poor-Quality  
Health Care  
Through  
Responsible  
Purchasing  
Leadership

by  
Midwest Business Group on Health  
in collaboration with  
Juran Institute, Inc.  
The Sevryn Group, Inc.



# Don Berwick Speaks

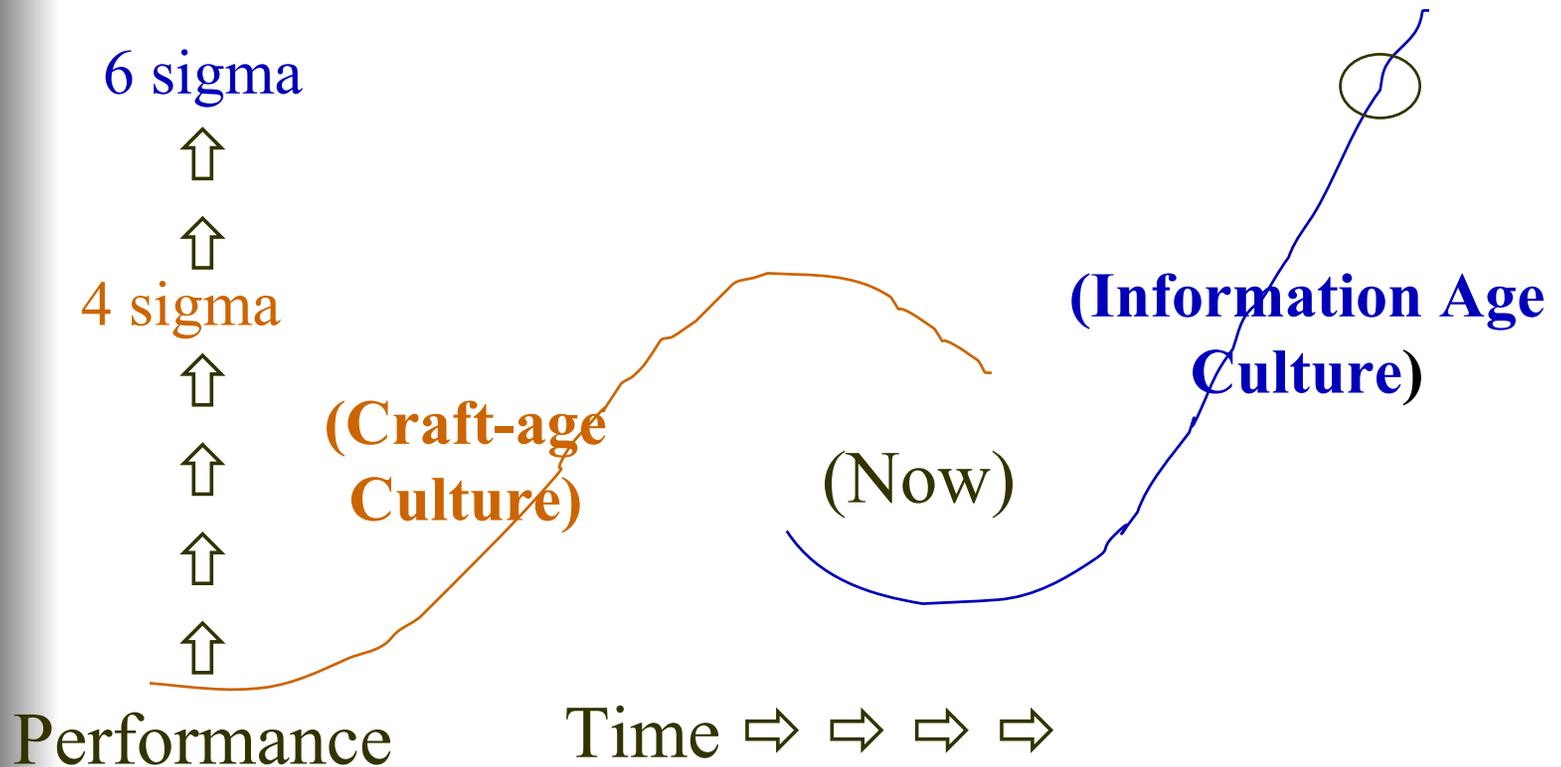
- *“I’d say patients are safer today in some hospitals, and certainly in the VA, but it’s still a pretty small minority. Safety . . . still hasn’t happened” in most places. “I don’t know why the public isn’t more pissed off about this. Imagine what the reaction would be if we had a similar mortality in aviation.”*

- The Washington Post, 12/3/02



Are we ready to  
create – together –  
health care's 2<sup>nd</sup>  
Curve ?

# 1st Curve: Pre-Industrial, Craft-based 2nd Curve: Post-Information (Systems)



- adapted from Ian Morrison, The Second Curve. Managing the Velocity of Change, 1996



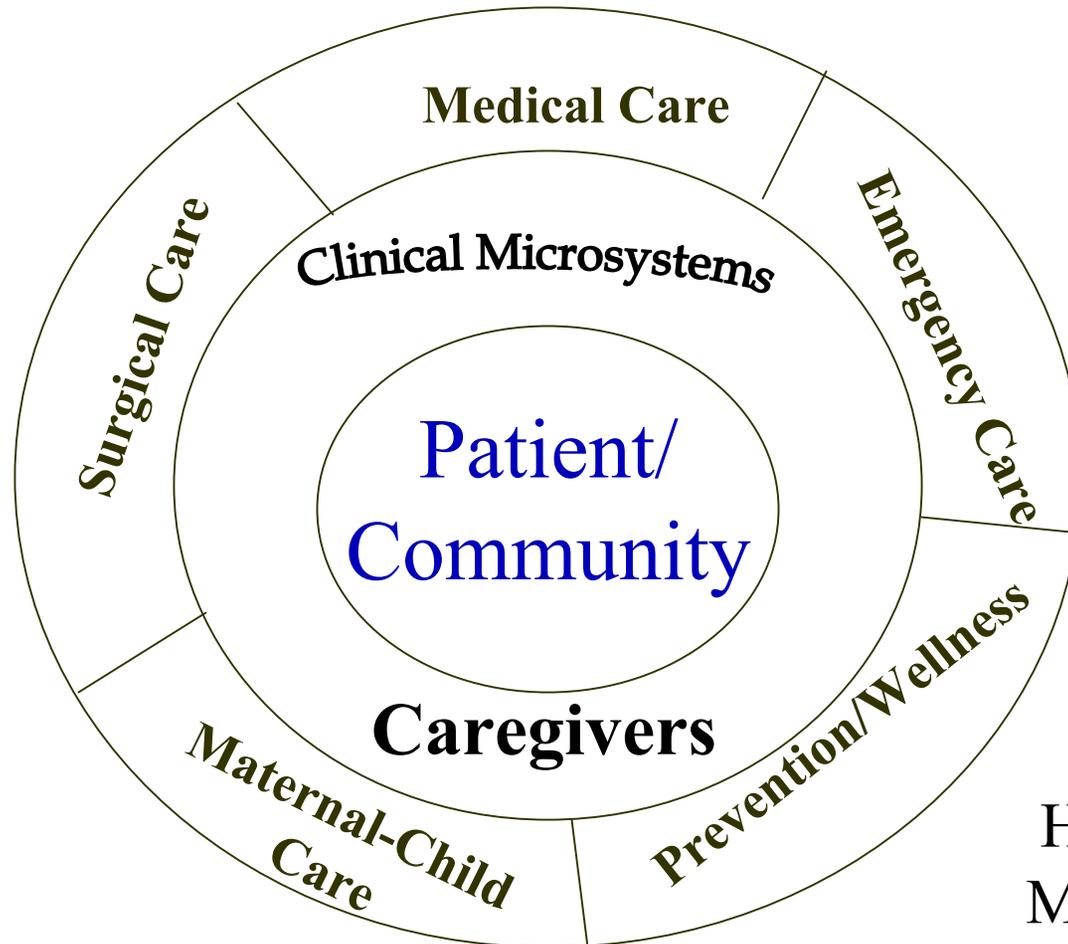
And where will we find  
the knowledge to create  
health care's 2<sup>nd</sup> Curve, its  
future paradigm . . . . ?

(My vote as  
the Flexner  
Report of  
the 21<sup>st</sup>  
Century)



# The Vision: Designing Systems Around Those We Serve

## Larger Environment



D. Berwick.  
Health Affairs,  
May/June, 2002

# Health Care Process “Genealogy”

## Regulation

Hammurabi



Legal system



State Boards



JCAHO

“Inspection”



PRO/NCQA



Report cards,  
HEDIS, ORYX

## Learning Science

Hippocrates



Nightingale, 4Doctors



Flexner, Codman,  
ACS/Hospital  
Standardization



M&M conferences



Donabedian, structure,  
process, outcome



Outcomes, Disease  
management  
???

# Health Care Process “Genealogy”

## Regulation

Hammurabi



Legal system



State Boards



JCAHO  
“Inspection”



**Penalties**

## Learning Science

Hippocrates



Nightingale, 4Doctors



Flexner, Codman,  
ACS/Hospital  
Standardization



M&M conferences

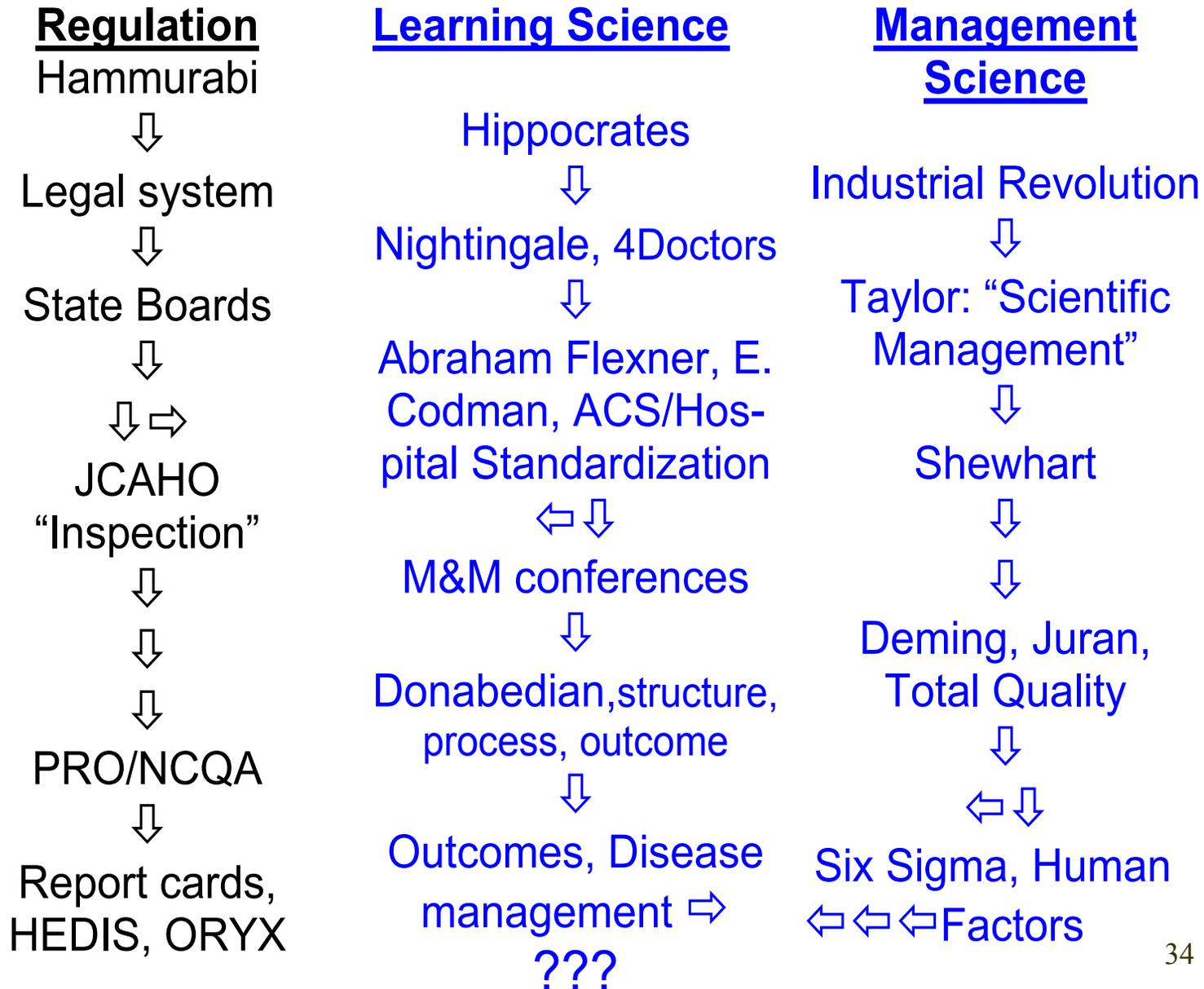


**Vigilance**

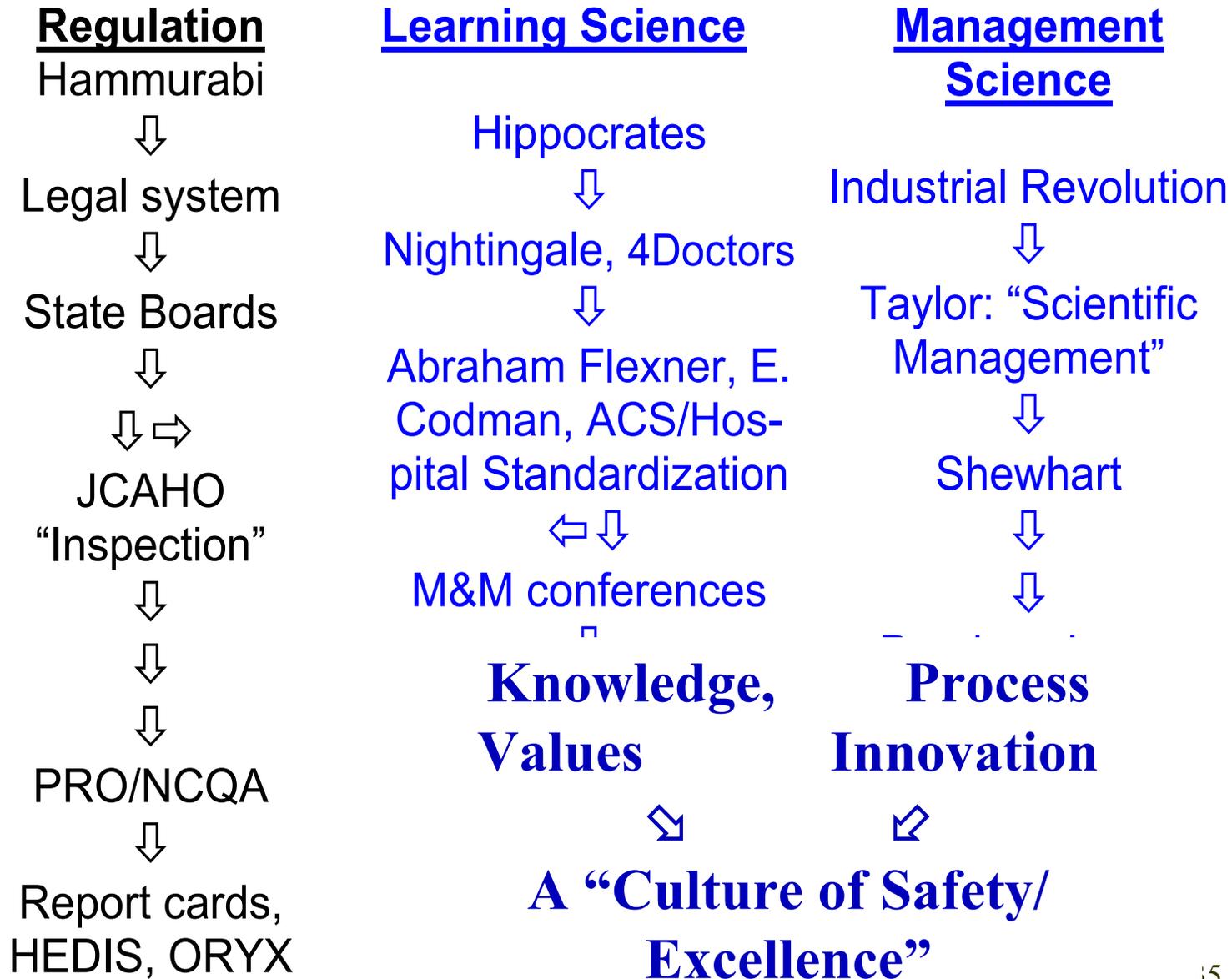


**The “Culture of Blame”**

# Enter the “3rd Pathway”



# Enter the “3rd Pathway”



# From 2-4 $\sigma$ to 5-6 $\sigma$ : The Innovations

- Human Factors Science
- Quality Science/Six Sigma
- ISO 9000 and Baldrige
- **Leadership/Cultural Transformation**

# The Innovations

... *And Their Real Implication?*

- Human Factors Science ⇒ **Health Care's**
- Quality Science/ Six Sigma ⇒ **Concurrent**
- ISO 9000 and Baldrige ⇒ **Industrial,**
- Leadership/ Cultural Transformation ⇒ **Information,**
- ⇒ **Consumer and**
- ⇒ **Culture**
- ⇒ **Revolutions**



And how will the  
process evolve?

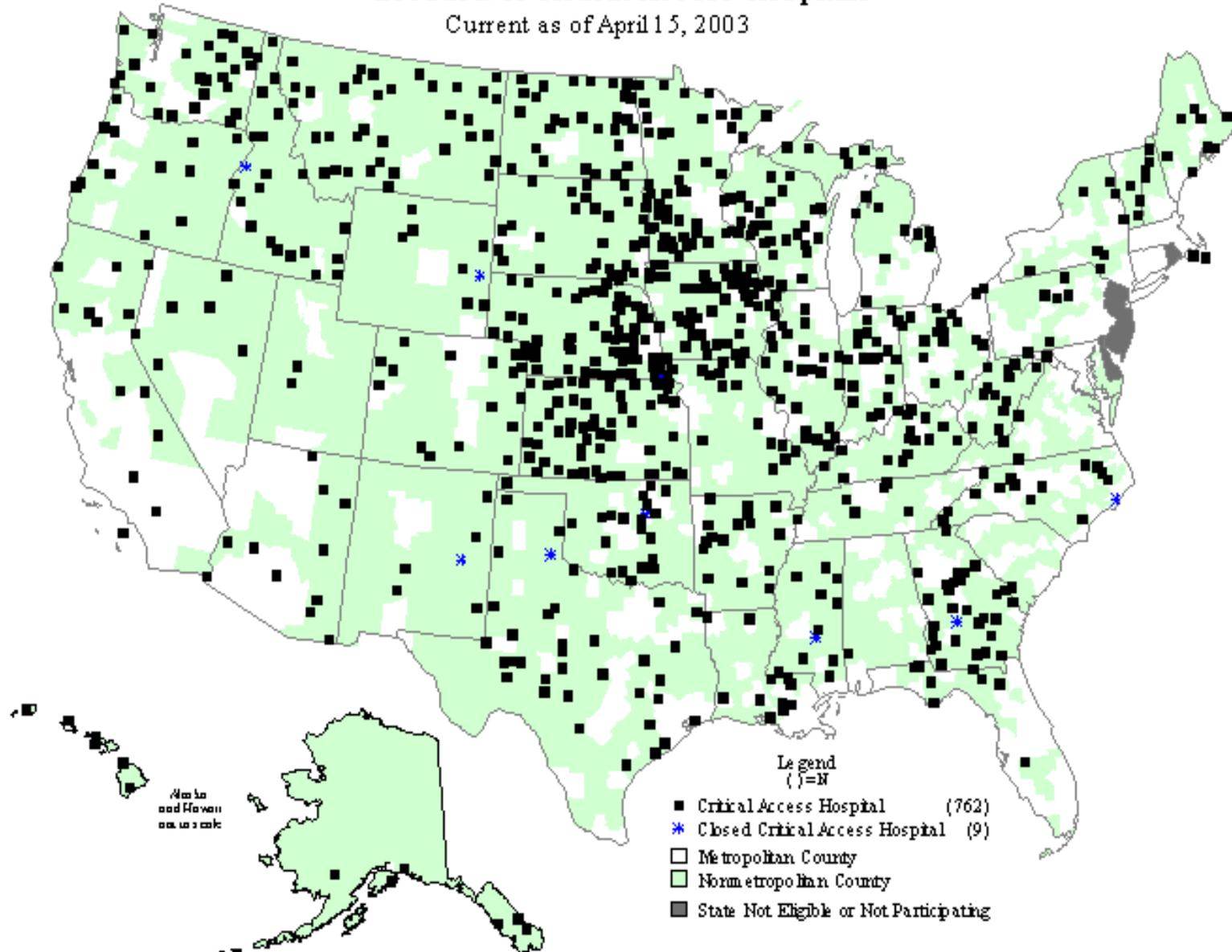
US health care, 2003, is a “complex adaptive system.” Such systems evolve not via top-down expert solutions, but instead via “scaling up” small successes into larger, integrative wholes.

## Therefore . . .

- **Health care's 2<sup>nd</sup> curve will emerge not as a top-down (i.e., “expert directed”) process, but instead as a bottom-up, “action-research,” learning phenomenon, “chunking” learnings from this research into larger, systemic creations. I predict that this process will generate the public health system of the future.**

# Location of Critical Access Hospitals

Current as of April 15, 2003



## Location of Critical Access Hospitals

Current as of April 15, 2003



Implication? *With FLEX supporting performance improvement within such a network of “action research” sites, the potential for lighting the path toward American health care’s 2<sup>nd</sup> Curve is huge!*



□ Non-metropolitan County  
■ State Not Eligible or Not Participating

# “Small is Beautiful”

- **Culture:** It is very difficult to change. The smaller the organization, the more likely success of change.
- **Stakeholder involvement:** Members of small communities arguably have a more conscious sense of the importance of their local health care providers.
- **Intimacy and interdependency of providers.** They are neighbors, and share a common vulnerability of their lifestyles that does not exist in large institutions.
- **Communication:** Less complex in small settings.
- **Economic impact:** Small hospitals are more vital to the economic wellbeing of their communities.
- **Small scale:** Essential 2<sup>nd</sup> Curve experimentation with new methods is easier with “mini-QI projects,” and the consequences of non-success less “bad.”
- **Focused mission:** SURVIVAL! Demonstrable quality ⇒ patient retention = **community survival!**

# CMS data already proves we can do it!

- Timely management of key interventions of patients presenting with acute myocardial infarction
- Timely management of patients presenting with pneumonia
- Etc.

- derived from 7/9/03 email from Edwin Huff, PhD, MA, Science Officer, CMS, Boston



But change on the order of  
true, 2<sup>nd</sup> Curve paradigm shift  
won't be easy anywhere,  
because . . . . .

# As John Maynard Keynes once noted . . .

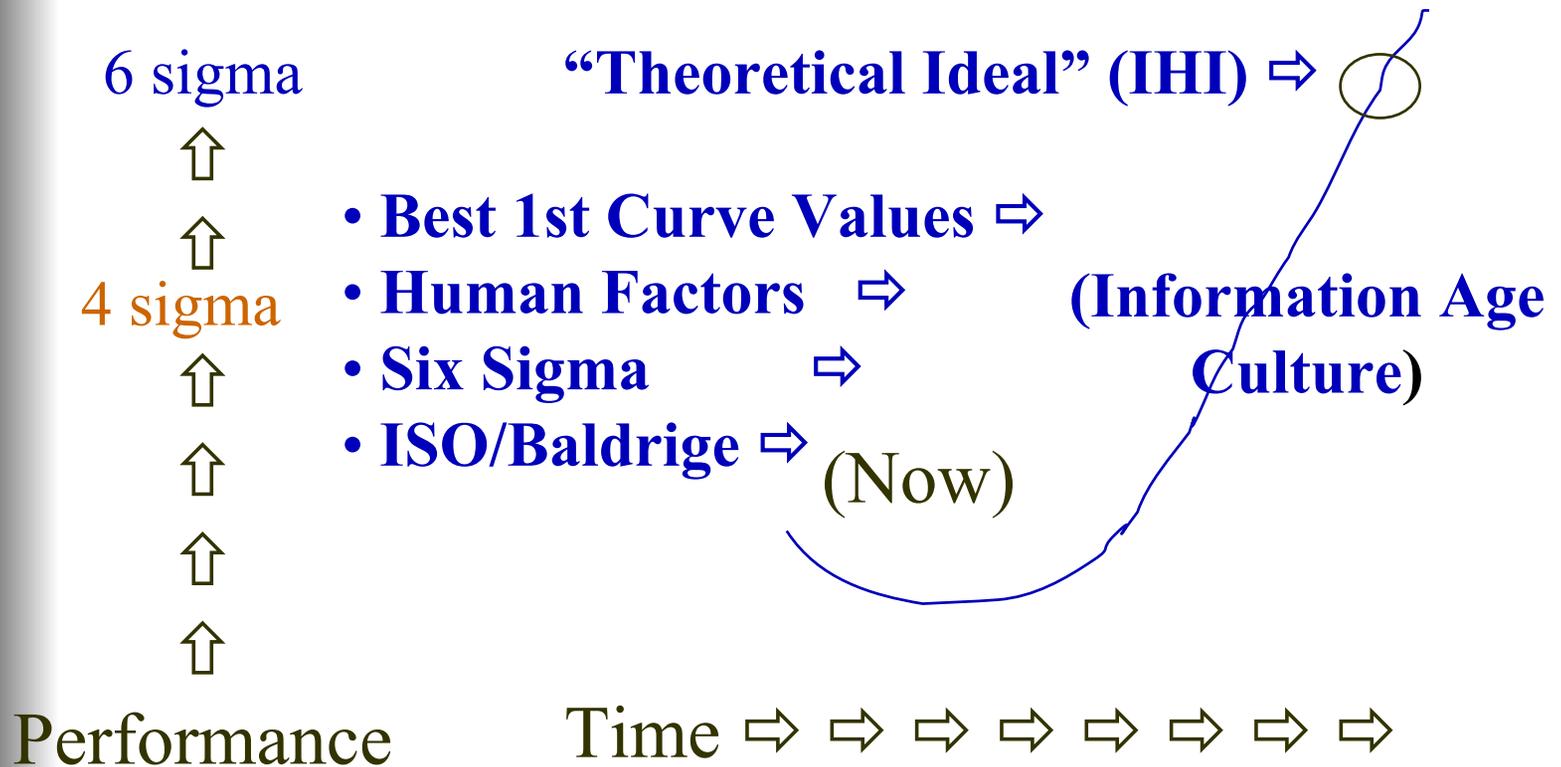
- *“The hardest thing is not to get people to accept the new ideas, it is to get them to forget the old ones.”*
- **Or, as a pioneering 20th Century physicist once remarked,  
“Scientific progress moves forward, one funeral at a time.”**

# Leadership and Culture

“One might go so far as to say that a *unique* function of ‘leadership,’ as contrasted with ‘management’ or ‘administration,’ is *the creation and management of culture.*”

- Edgar Schein, Organizational Culture and Leadership

# 2nd Curve: Post-Information (Systems)



- adapted from Ian Morrison, The Second Curve. Managing the Velocity of Change, 1996

And . . . *it's happening!*

# QualityProgress

Advancing Performance Excellence

www.asq.org

SEPTEMBER 2002

## How Healthcare Can Get Better

Reduce Human Error

Meet Patient Needs

Manage Your Own Care

Should You Update  
To ISO 9001:2000?

Process Mapping  
Made Easy

The Little Hot Dog  
Stand That Could

American Society for Quality  


A supplement to Modern Healthcare

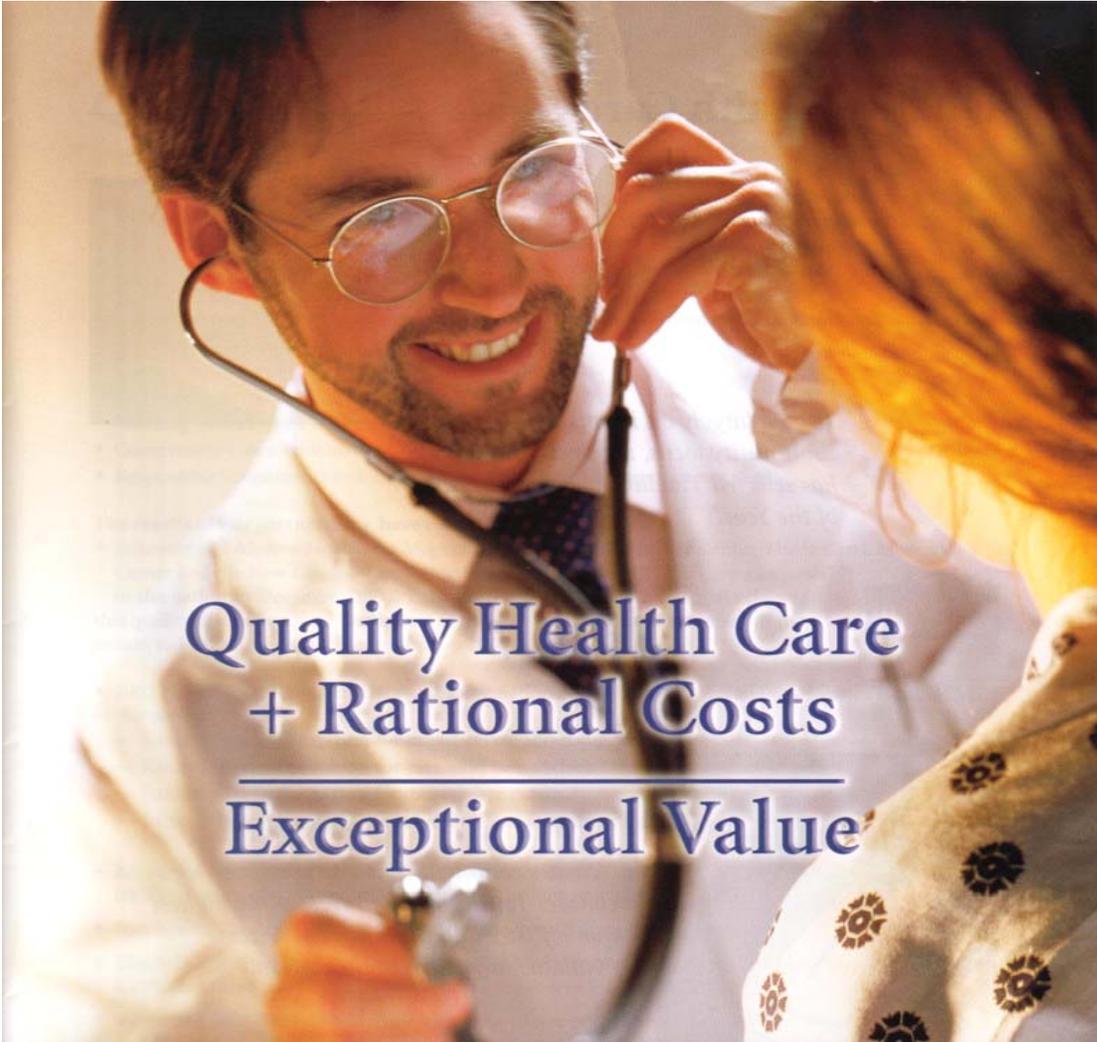
# Modern Healthcare

David Bates, M.D.,  
chief of general medicine,  
Brigham and Women's  
Hospital, Boston

## 100 SOLUCIENT TOP HOSPITALS

An in-depth  
look at their  
business and  
clinical  
practices,  
nurse-staffing  
levels and  
patient  
outcomes





Quality Health Care  
+ Rational Costs  

---

Exceptional Value

THEDA  CARE™

touchpoint  
HEALTH PLAN



What might the “theoretical  
ideal” look like?

Would anyone believe the  
larva would become this?!



(“Theoretically Ideal,” 2<sup>nd</sup>  
Curve health care promises  
to be better than we can now  
probably imagine.)

**F**ew discussions about patient safety get very far before someone cites the groundbreaking work of **Lucian L. Leape**. His 1994 article "Error in medicine" published in *JAMA* provided a needed wake-up call to the profession, and sparked the patient safety "movement."

A pediatric surgeon and medical school professor, Leape, 72, is an adjunct professor of health policy at the Harvard School of Public Health. He was a founding director of the National Patient Safety Foundation, and was one of the principal investigators and authors of "To Err is Human," the Institute of Medicine's controversial 1999 report that found that as many as 98,000 American hospital patients die each year from preventable errors.

He has been a leading advocate of the nonpunitive systems approach to the prevention of medical error and has led numerous studies of adverse drug events and their underlying systems failures.



**The**

*“The fundamental barrier to patient safety isn’t lack of resources. It’s lack of will.”*

sonal failings and carelessness. Rather, they result from defects in system design and working conditions that lead careful and competent professionals to make mistakes.

So we need to make fundamental changes to how we think about mistakes. The challenge is to focus on the entire process, instead of finding an individual to blame. That’s a transforming concept. Advances will be slow and uneven, and there’ll be strong resistance. Still, the progress we have made in the past few years has been astounding. At the same time, it’s also disappointing because we would

**progress**

**The leader in the drive for patient safety says we have the resources, we just need the will.**

Photo by Mark Crane

[www.memag.com](http://www.memag.com) MEDICAL ECONOMICS/AUGUST 8, 2003 29

*Given where we are on health care's declining 1<sup>st</sup> Curve, can there be any priority higher than creating safer health care for our patients and communities?*

So . . . If not us, who? If not  
now, when . . . ?

# *Making a Difference:*

## What Might I Do . . . ?

*“Make yourself what you want the world to become.”*

- Mohandas Gandhi

“To successfully respond to the myriad changes that shake the world . . . Transformation into a new style of management is required . . .

*The first step is the transformation of the individual.”*

- W. Edwards Deming

# My Hypotheses for this Session

- Our \$1.6+ trillion health care system is now virtually collapsing under the weight of its sheer size (equal to the world's 4<sup>th</sup> largest national GNP) and staggering complexity.
- Future health care will not emerge incrementally by “problem-solving” the current system. It will arise “ground-up,” like the Phoenix from its ashes, based on fundamentally different assumptions about how we care for patients and communities. In Thomas Kuhn's words, the future health care system will represent a true “paradigm shift.”
- **Rural health is extraordinarily well positioned to provide leadership and guidance to our entire health system as it traverses this paradigm shift.**

# Creating Health Care's 2<sup>nd</sup> Curve

➤ Why it's *REALLY* important!

# A Final Case Study

- 30 year old primigravida, excellent health
- 8/15/01 Checkup (34 weeks) - weight gain, edema, BP slightly elevated
- 8/21/01 - Call to physician with significant general discomfort. Nurse: “Don’t worry, dear. Your BP was OK on your last visit. Just keep your appointment in 2 days.”
- 8/23/01 - Office visit. BP ↑ ↑ ↑. Diagnosis: severe (potentially fatal) toxemia of pregnancy
- Immediate admission to ICU, IV Steroids, etc.

# A Final Case Study (cont.)

- 8/24 Emergency C-section
- Section successful, mom OK, baby admitted to neonatal intensive care unit, projected stay - 2 weeks

(Heroic actions on part of physicians, nurses turn potential tragedy into a “Near Miss”)

- In one week, baby pulls out feeding tube, IV’s and declares himself ready to go home
- 8/31 baby discharged home
- 8/24/02, 03 Reese Christopher Merry celebrates 1<sup>st</sup>, 2<sup>nd</sup> birthdays, all doing fine!

# An Invitation

*We have far to traverse in creating systems that better serve our patients and communities. I will supply an edited version of this presentation to program organizers who might email copies to those interested. I encourage those attending this session to use these materials as you might wish for addressing local educational and communications needs. I invite you also to share with me your reflections on this work in progress.*

- Martin Merry, MD (merrymd@comcast.net)

# Supplement

Assumptions for the Pre-Industrial, Craft-age 1<sup>st</sup> Curve (20th Century) and Post-Information Revolution, 2<sup>nd</sup> Curve (21st Century) Health Care Worlds

# Assumptions

## Pre-Industrial

- Quality capability: 2 – 4  
Sigma “satisfactory”
- Organized around needs of providers
- Asks community to come to provider
- Reacts only to individual (e.g. diabetic), relatively blind to needs of population (e.g. of diabetics)

## Post-Information

- Quality capability: 5 – 6  
Sigma *essential*
- Designed around needs of those served
- Providers reach out to where community “lives”
- Plans for population, reduces need for individual care, but retains ability to respond to needs of the individual

# Assumptions (2)

## Pre-Industrial

- Providers define quality in terms of morbidity/mortality, and resist publication of actual data because “our patients are different”
- Quality capability conceived almost solely in terms of professional skills, with virtual blindness to importance of support systems

## Post-Information

- Users add to definition of quality, including satisfaction with service, functionality and value, insist on information to choose, using appropriately case-mix adjusted information
- Understands that carefully designed quality infrastructure absolutely essential to reduce risk and optimize skills of professionals

# Assumptions (3)

## Pre-Industrial

- Assumption: “First, do no harm,” provider intentions impeccable
- Reality: Human error generates harm, threat of punishment as deterrent
- Complexity makes it “easy to do things wrong, hard to do things right” (IOM)

## Post-Information

- Assumption: Humans inherently fallible, harm occurs *despite* providers’ best intentions
- Reality: System is “error tolerant,” i.e., accepts human error as inevitable, designs “error-proofing”
- Well-designed “latent workplace conditions” make it “easy to do things right, hard to do things wrong”

# Assumptions (4)

## Pre-Industrial

- Solution to problems translates to “retraining” or censuring professionals and provider institutions
- Ultimate definition of quality endlessly debated – thus avoiding adequate measurement, management and improvement

## Post-Information

- Solution to problems translates to re-designing error tolerant systems that support humans and prevent/reduce/“trap” inevitable human error
- Consensus exists regarding a variety of key measures, including access to care, clinical outcomes, functionality, satisfaction, and value received

# Assumptions (5)

## Pre-Industrial

- System fragmented – patient “fends for her/himself” moving from “silo to silo”
- Medical record fragmented and idiosyncratic to particular “silo:” Individual caregivers work off entirely unconnected, often contradictory “scripts”

## Post-Information

- System seamless – coordinates needs of complex patients, using case managers for those especially difficult
- Medical record electronic – medical record instantly updated and available for all relevant caregivers: all caregivers read from precisely the “same script”

# Assumptions (6)

## Pre-Industrial

- Information centralized and hierarchical – Physician as “supreme source of knowledge, dictator of therapy”
- Insurance monolithic, not enrollee sensitive, with perhaps a few choices for individuals
- Billing/payment systems arcane, confusing, virtually impossible to understand

## Post-Information

- Information dispersed/heterarchical – all caregivers and patients have direct access – Physician as integrator/facilitator of choices
- Insurance “mass customized,” web-based options chosen by individuals based on specific needs
- Coverage and co-payment clear, web-facilitated, and easy to navigate

# Assumptions (7)

## Pre-Industrial

- Payment system blind to quality and value, rewards volume, even that generated by poor quality and error
- Huge resources consumed in “reimbursing” inefficient systems, human error, litigation, and “cost-plus” models

## Post-Information

- Payment system fine-tuned to value, rewards superior performance as defined by value equation ( $V = Q/\$$ )
- Huge resources freed up for innovation and quality improvement, with “cost-plus, value-blind reimbursement” a distant memory

# Assumptions (8)

## Pre-Industrial

- Health care as an isolated, quirky “high-tech, organizationally primitive” industry, a “throwback” to pre-18<sup>th</sup> century human organizational development
- “Crashes” common, iatrogenic death/injury headlines a regular, predictable occurrence

## Post-Information

- Health care as a vibrant participant in the best that learnings from the industrial/information revolution can offer
- Crashes rare, with iatrogenic death equivalent to airline performance

# Assumptions (9)

## Pre-Industrial

- As of today, trust in system increasingly shaky and falling
- Extremely high, probably incalculable “cost of poor quality”

## Post-Information

- As of ??????, trust in system high and rising
- Minimal cost of poor quality